

**WEST****Freeform Search****Database:**

US Patents Full-Text Database  
 US Pre-Grant Publication Full-Text Database  
 JPO Abstracts Database  
 EPO Abstracts Database  
 Derwent World Patents Index  
 IBM Technical Disclosure Bulletins

**Term:**

fluorinated alkyl same alkenyl same liquid  
crystal\$

**Display:**  **Documents in Display Format:**  **Starting with Number**

**Generate:** ☐ Hit List ☒ Hit Count ☐ Side by Side ☐ Image

Search

Clear

Help

Logout

Interrupt

Main Menu

Show S Numbers

Edit S Numbers

Preferences

Cases

**Search History**

**DATE:** Thursday, October 24, 2002   [Printable Copy](#)   [Create Case](#)

**Set Name Query**  
side by side

**Hit Count Set Name**  
result set

*DB=USPT,JPAB,EPAB,DWPI,TDBD; PLUR=YES; OP=ADJ*

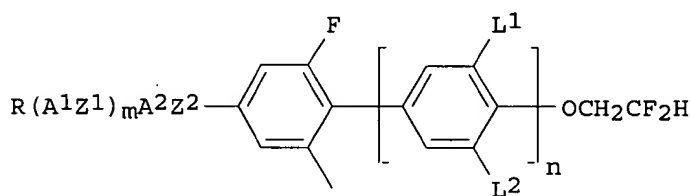
<u>L5</u>	fluorinated alkyl same alkenyl same liquid crystal\$	3	<u>L5</u>
<u>L4</u>	florinated alkyl same alkenyl same liquid crystal\$	0	<u>L4</u>
<u>L3</u>	L1 and wand-\$.in.	0	<u>L3</u>
<u>L2</u>	L1 and Gough-\$.in.	1	<u>L2</u>
<u>L1</u>	159? and liquid crystal\$	963	<u>L1</u>

END OF SEARCH HISTORY

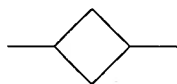
AN 1995:578518 CAPLUS  
 DN 122:326677  
 TI Liquid-crystal composition for display device  
 PA Merck Patent G.m.b.H., Germany  
 SO Jpn. Kokai Tokkyo Koho, 97 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 IC ICM C07C043-225  
 ICS C07C069-75; C07C069-753; C07C069-757; C07C069-773; C07C069-92;  
 C07C255-37; C07C323-10; C07D239-26; C07D239-34; C09K019-10;  
 C09K019-30; C09K019-34; C09K019-54; G02F001-13  
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other  
 Reprographic Processes)  
 FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 06329573	A2	19941129	JP 1994-96668	19940510
	DE 4315371	A1	19941117	DE 1993-4315371	19930510
	DE 4338164	A1	19950511	DE 1993-4338164	19931109
	JP 07145099	A2	19950606	JP 1994-149687	19940630
PRAI	DE 1993-4315371		19930510		
	DE 1993-4338164		19931109		

GI



I



II

AB A liq.-crystal compn. for an electrooptical display device contains a benzene deriv. represented by the formula I [R = H or C1-15 alkyl or alkenyl which may be substituted with CN, CF3, or halogen and contains O, S, CO, CO2, OCO, OCO2, or II; A1, A2 = trans-1,4-cyclohexylene, 1,4-phenylene, 1,4-cyclohexenylene, 1,4-bicyclo(2,2,2)-octylene, piperidine-1,4-diyl, naphthalene-2,6-diyl, decahydronaphthalene-2,6-diyl, or 1,2,3,4-tetrahydronaphthalene-2,6-diyl with some of the groups substituted with F atoms; Z1, Z2 = CO2, OCO, CH2O, OCH2, CH2CH2, CH=CH, or C.tplbond.C with the proviso that one of Z1, Z2 = (CH2)4 or CH=CHCH2CH2; L1, L2, L3 = H or F; m = 0, 1, or 2; n = 0 or 1].

ST liq crystal compn benzene deriv display

IT Liquid crystals

RL: TEM (Technical or engineered material use); USES (Uses)  
 (benzene derivs. as)

IT Optical imaging devices

(electrooptical, liq.-crystal compns. contg. benzene derivs. for)

IT 76802-59-0 76802-61-4 81711-13-9 84816-56-8 102714-93-2  
 106349-49-9 128140-58-9 136903-59-8 163002-76-4 163002-77-5  
 163002-78-6 163002-79-7 163002-81-1 163002-82-2 163035-69-6  
 163035-71-0 163035-72-1 163180-75-4 163425-20-5 163425-21-6  
 163425-22-7 163425-23-8 163425-24-9

RL: TEM (Technical or engineered material use); USES (Uses)

(electrooptical display device using liq.-crystal compn. contg.)

IT 163002-80-0 163035-70-9 163180-69-6 163180-70-9 163180-71-0  
 163512-30-9 163512-32-1 163578-91-4

RL: TEM (Technical or engineered material use); USES (Uses)  
 (liq.-crystal compn. for electrooptical display device)

IT 163002-74-2P 163002-75-3P 163002-79-7P 163002-80-0P 163035-67-4P  
 163035-68-5P 163035-69-6P 163035-70-9P 163035-71-0P 163035-72-1P  
 163035-73-2P 163424-20-2P 163424-21-3P 163424-22-4P 163424-23-5P  
 163424-24-6P 163424-25-7P 163424-26-8P 163424-27-9P 163424-28-0P  
 163424-29-1P 163424-30-4P 163424-31-5P 163424-32-6P 163424-33-7P  
 163424-34-8P 163424-35-9P 163424-36-0P 163424-37-1P 163424-38-2P  
 163424-39-3P 163424-40-6P 163424-41-7P 163424-42-8P 163424-43-9P  
 163424-44-0P 163424-45-1P 163424-46-2P 163424-47-3P 163424-48-4P  
 163424-49-5P 163424-50-8P 163424-51-9P 163424-52-0P 163424-53-1P  
 163424-54-2P 163424-55-3P 163424-56-4P 163424-57-5P 163424-58-6P  
 163424-59-7P 163424-60-0P 163424-61-1P 163424-62-2P 163424-63-3P  
 163424-64-4P 163424-65-5P 163424-66-6P 163424-67-7P 163424-68-8P  
 163424-69-9P 163424-70-2P 163424-71-3P 163424-72-4P 163424-73-5P  
 163424-74-6P 163424-75-7P 163424-76-8P 163424-77-9P 163424-78-0P  
 163424-79-1P 163424-80-4P 163424-81-5P 163424-82-6P 163424-83-7P  
 163424-84-8P 163424-85-9P 163424-86-0P 163424-87-1P 163424-88-2P  
 163424-89-3P 163424-90-6P 163424-91-7P 163424-92-8P 163424-93-9P  
 163424-94-0P 163424-95-1P 163424-96-2P 163424-97-3P 163424-98-4P  
 163424-99-5P 163425-00-1P 163425-01-2P 163425-02-3P 163425-03-4P  
 163425-04-5P 163425-05-6P 163425-06-7P 163425-07-8P 163425-08-9P  
 163425-09-0P 163425-10-3P 163425-11-4P 163425-12-5P  
**163425-13-6P** 163425-14-7P 163425-15-8P 163425-16-9P  
 163425-17-0P 163425-18-1P 163425-19-2P

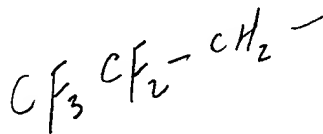
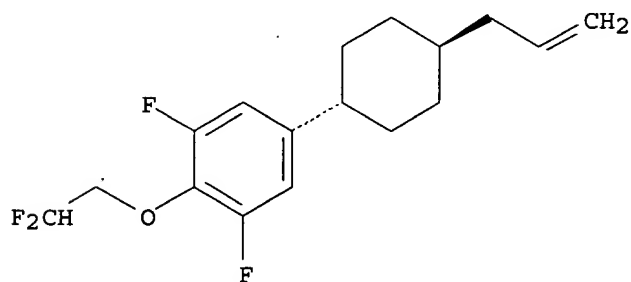
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (prepn. and use in liq. crystal compns. for display devices)

IT **163425-13-6P**  
 RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (prepn. and use in liq. crystal compns. for display devices)

RN 163425-13-6 CAPLUS

CN Benzene, 2-(2,2-difluoroethoxy)-1,3-difluoro-5-[4-(2-propenyl)cyclohexyl]-, trans- (9CI) (CA INDEX NAME)

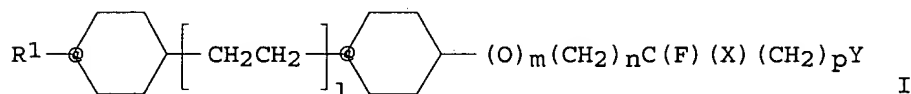
Relative stereochemistry.



AN 1995:994156 CAPLUS  
 DN 124:41491  
 TI Liquid crystal compound and liquid crystal composition containing the same  
 IN Miyazawa, Kazutoshi; Matsui, Shuichi; Fujita, Atsuko; Kondo, Tomoyuki;  
 Goto, Yasuyuki; Nakagawa, Etsuo; Sawada, Shinichi  
 PA Chisso Corp., Japan  
 SO PCT Int. Appl., 87 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA Japanese  
 IC ICM C09K019-30  
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other  
 Reprographic Processes)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9520021	A1	19950727	WO 1994-JP1914	19941111
	W: AM, AU, BB, BG, BR, BY, CA, CN, CZ, EE, FI, GE, HU, KG, KR, KZ, LK, LR, LT, LV, MD, MG, MN, NO, NZ, PL, RO, RU, SI, SK, TJ, TT, UA, US, UZ, VN				
	RW: KE, MW, SD, SZ, AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	JP 11035500	A2	19990209	JP 1994-129304	19940610
	AU 9481163	A1	19950808	AU 1994-81163	19941111
	EP 742275	A1	19961113	EP 1995-900293	19941111
	EP 742275	B1	20020320		
	R: DE, GB				
	US 5779936	A	19980714	US 1996-682678	19960724
PRAI	JP 1994-6629	A	19940125		
	JP 1994-129304	A	19940610		
	WO 1994-JP1914	W	19941111		
OS	MARPAT 124:41491				
GI					



AB A novel liq. crystal compd. represented by general formula I where R1 represents C1-C12 alkyl wherein one CH2 group may be replaced by oxygen or -CHCH-; X represents hydrogen or fluorine; Y represents hydrogen or C1-C5 alkoxy; l and m represent each independently 0 or 1; and n and p represent each independently an integer of 0 to 10; provided n is at least 1 when p is 0, and X represents fluorine and p represents 0 when Y represents alkoxy and a liq. crystal compn. contg. the same and having a high clearing point and a viscosity redn. effect suitable for use as a liq. crystal display element are claimed.

ST liq crystal fluoroalkyloxycyclohexylalkylcyclohexane electrooptical display

IT Liquid crystals  
 (fluoroalkyloxycyclohexylalkylcyclohexane derivs. as)

IT Optical imaging devices  
 (electrooptical liq.-crystal, contg. fluoroalkyloxycyclohexylalkylcyclohexane derivs.)

IT	171517-63-8P	171517-65-0P	171517-66-1P	171517-67-2P	171517-68-3P
	171517-69-4P	171517-71-8P	171517-72-9P	171717-82-1P	171717-83-2P
	171717-84-3P	171717-85-4P	171717-86-5P	171717-87-6P	171717-88-7P
	171717-89-8P	171717-90-1P	171717-91-2P	171717-92-3P	171717-93-4P
	171717-94-5P	171717-95-6P	171717-96-7P	171717-97-8P	

171717-98-9P	171717-99-0P	171718-00-6P	171718-01-7P	171718-02-8P
171718-03-9P	171718-04-0P	171718-05-1P	171718-06-2P	171718-07-3P
171718-08-4P	171718-09-5P	171718-10-8P	171718-11-9P	171718-12-0P
171718-13-1P	171718-14-2P	171718-15-3P	171718-16-4P	171718-17-5P
171718-18-6P	171718-19-7P	171718-20-0P	171718-21-1P	171718-22-2P
171718-23-3P	171718-24-4P	171718-25-5P	171718-26-6P	171718-27-7P
171718-28-8P	171718-29-9P	171718-30-2P	171718-31-3P	171718-32-4P
171718-33-5P	171718-34-6P	171718-35-7P	171718-36-8P	171718-37-9P
171718-38-0P	171718-39-1P	171718-40-4P	171718-41-5P	171718-42-6P
171718-43-7P	171718-44-8P	171718-45-9P	171718-46-0P	171718-47-1P
171718-48-2P	171718-49-3P	171718-50-6P	171718-51-7P	171718-52-8P
171718-53-9P	171718-54-0P	171718-55-1P	171718-56-2P	171718-57-3P
171718-58-4P	171718-59-5P	171718-60-8P	171718-61-9P	171718-62-0P
171718-63-1P	171718-64-2P	171718-65-3P	171718-66-4P	171718-67-5P
171718-68-6P	171718-69-7P	171718-70-0P	171718-71-1P	171718-72-2P
171718-73-3P	171718-74-4P	171718-75-5P	171718-76-6P	171718-77-7P
171718-78-8P	171718-79-9P	171718-80-2P	171718-81-3P	171718-82-4P
171718-83-5P	171718-84-6P	171718-85-7P	171718-86-8P	171718-87-9P
171718-88-0P	171718-89-1P	171718-90-4P	171718-91-5P	171718-92-6P
171718-93-7P	171718-94-8P	171718-95-9P	171718-96-0P	171718-97-1P
171718-98-2P	171718-99-3P	171719-00-9P	171719-01-0P	171719-02-1P
171719-03-2P	171719-04-3P	171719-05-4P	171719-06-5P	171719-07-6P
171719-08-7P	171719-09-8P	171719-10-1P	171719-11-2P	171719-12-3P
171719-13-4P	171719-14-5P	171719-15-6P	171719-16-7P	171719-17-8P
171719-18-9P	171719-19-0P	171719-20-3P	171719-21-4P	
171719-22-5P	171719-23-6P	171719-24-7P	171719-25-8P	
171719-26-9P	171719-27-0P	171719-28-1P	171719-29-2P	171719-30-5P
171719-31-6P	171719-32-7P	171719-33-8P	171719-34-9P	171719-35-0P
171719-36-1P	171719-37-2P	171719-38-3P	171719-39-4P	171719-40-7P
171719-41-8P	171719-42-9P	171719-43-0P	171719-44-1P	171719-45-2P
171719-46-3P	171719-47-4P	171719-48-5P	171719-49-6P	171719-50-9P
171719-51-0P	171719-52-1P	171719-53-2P	171719-54-3P	171719-55-4P
171719-56-5P	171719-57-6P	171719-58-7P	171719-59-8P	171719-60-1P
171719-61-2P	171719-62-3P	171719-63-4P	171719-64-5P	171719-65-6P
171719-66-7P	171719-67-8P	171719-68-9P	171719-69-0P	171719-70-3P
171719-71-4P	171719-72-5P	171719-73-6P	171719-74-7P	171719-75-8P
171719-76-9P	171719-77-0P	171719-78-1P	171719-79-2P	171719-80-5P
171719-81-6P	171719-82-7P	171719-83-8P	171719-84-9P	171719-85-0P
171719-86-1P	171719-87-2P	171719-88-3P	171719-89-4P	171719-90-7P
171719-91-8P	171719-92-9P	171719-93-0P	171719-94-1P	171719-95-2P
171719-96-3P	171719-97-4P	171719-98-5P	171719-99-6P	171720-00-6P
171720-01-7P	171720-02-8P	171720-03-9P	171720-04-0P	171720-05-1P
171720-06-2P	171720-07-3P	171720-08-4P	171720-09-5P	171720-10-8P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(prepn. and use as liq. crystal for electrooptical display devices)

IT	171720-11-9P	171720-12-0P	171720-13-1P	171720-14-2P	171720-15-3P
	171720-16-4P	171720-17-5P	171720-18-6P	171720-19-7P	171720-20-0P
	171720-21-1P	171720-22-2P	171720-23-3P	171720-24-4P	171720-25-5P
	171720-26-6P	171720-27-7P	171720-28-8P	171720-29-9P	171720-30-2P
	171720-31-3P	171720-32-4P	171720-33-5P	171720-34-6P	171720-35-7P
	171720-36-8P	171720-37-9P	171720-38-0P	171720-39-1P	171720-40-4P
	171720-41-5P	171720-42-6P	171720-43-7P	171720-44-8P	171720-45-9P
	171720-46-0P	171720-47-1P	171720-48-2P	171720-49-3P	
	171720-50-6P	171720-51-7P	171720-52-8P	171720-53-9P	
	171720-54-0P	171720-55-1P	171720-56-2P	171720-57-3P	
	171720-58-4P	171720-59-5P	171720-60-8P		
	171720-61-9P	171720-62-0P	171720-63-1P		
	171720-64-2P	171720-65-3P	171720-66-4P	171720-67-5P	
	171720-68-6P	171720-69-7P	171720-70-0P	171720-71-1P	
	171720-72-2P	171720-73-3P	171720-74-4P	171720-75-5P	171720-76-6P
	171720-77-7P	171720-78-8P	171720-79-9P	171720-80-2P	171720-81-3P
	171720-82-4P	171720-83-5P	171720-84-6P	171720-85-7P	171720-86-8P
	171720-87-9P	171720-88-0P	171720-89-1P	171720-90-4P	171720-91-5P

171720-92-6P 171720-93-7P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(prepn. and use as liq. crystal for electrooptical display devices)

IT 171717-97-8P 171719-22-5P 171720-49-3P

171720-52-8P 171720-53-9P 171720-54-0P

171720-55-1P 171720-58-4P 171720-60-8P

171720-61-9P 171720-62-0P 171720-63-1P

171720-66-4P 171720-67-5P 171720-68-6P

171720-70-0P

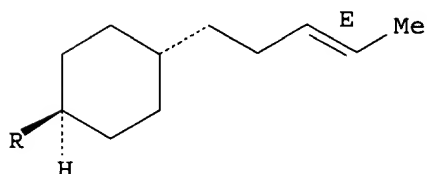
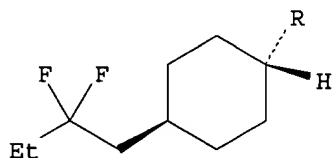
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(prepn. and use as liq. crystal for electrooptical display devices)

RN 171717-97-8 CAPLUS

CN 1,1'-Bicyclohexyl, 4-(2,2-difluorobutyl)-4'-(3-pentenyl)-,  
[1'.alpha.(trans),4'.beta.(E)]- (9CI) (CA INDEX NAME)

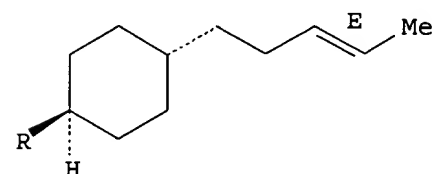
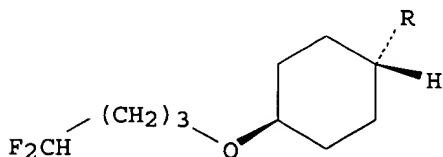
Relative stereochemistry.  
Double bond geometry as shown.



RN 171719-22-5 CAPLUS

CN 1,1'-Bicyclohexyl, 4-(4,4-difluorobutoxy)-4'-(3-pentenyl)-, stereoisomer  
(9CI) (CA INDEX NAME)

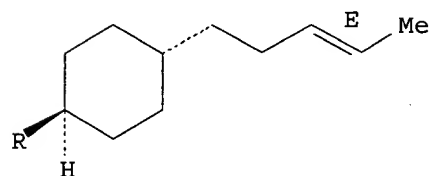
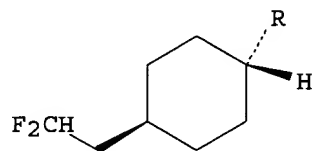
Relative stereochemistry.  
Double bond geometry as shown.



RN 171720-49-3 CAPLUS

CN 1,1'-Bicyclohexyl, 4-(2,2-difluoroethyl)-4'-(3-pentenyl)-,  
[1'.alpha.(trans),4'.beta.(E)]- (9CI) (CA INDEX NAME)

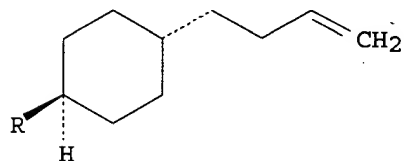
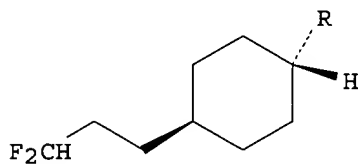
Relative stereochemistry.  
Double bond geometry as shown.



RN 171720-52-8 CAPLUS

CN 1,1'-Bicyclohexyl, 4-(3-butenyl)-4'-(3,3-difluoropropyl)-, [trans(trans)]-(9CI) (CA INDEX NAME)

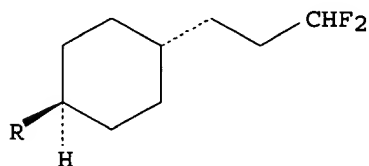
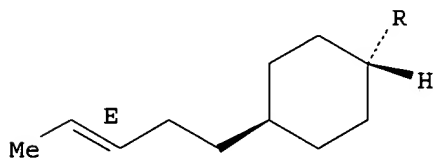
Relative stereochemistry.

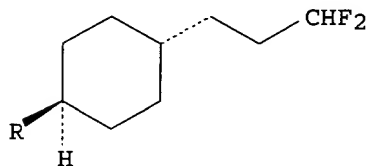
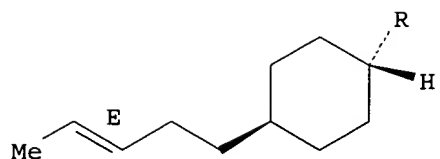


RN 171720-53-9 CAPLUS

CN 1,1'-Bicyclohexyl, 4-(3,3-difluoropropyl)-4'-(3-pentenyl)-, [1'.alpha.(trans),4'.beta.(E)]-(9CI) (CA INDEX NAME)

Relative stereochemistry.  
Double bond geometry as shown.

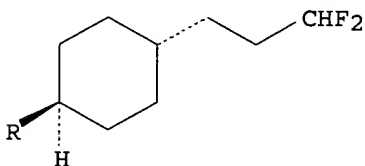
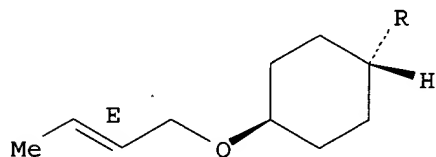




RN 171720-54-0 CAPLUS

CN 1,1'-Bicyclohexyl, 4-(2-butenyloxy)-4'-(3,3-difluoropropyl)-,  
[1.alpha.(trans),4.beta.(E)]- (9CI) (CA INDEX NAME)

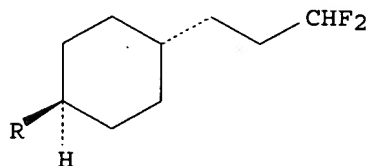
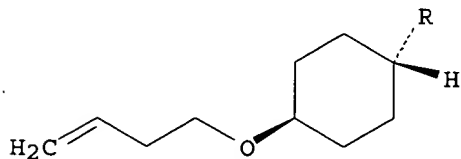
Relative stereochemistry.  
Double bond geometry as shown.



RN 171720-55-1 CAPLUS

CN 1,1'-Bicyclohexyl, 4-(3-butenyloxy)-4'-(3,3-difluoropropyl)-,  
[trans(trans)]- (9CI) (CA INDEX NAME)

Relative stereochemistry.



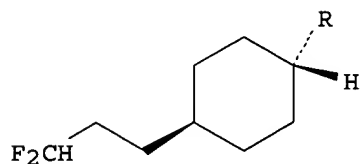
RN 171720-58-4 CAPLUS

CN 1,1'-Bicyclohexyl, 4-(3,3-difluoropropyl)-4'-(2-propenyloxy)-,



[trans(trans)]- (9CI) (CA INDEX NAME)

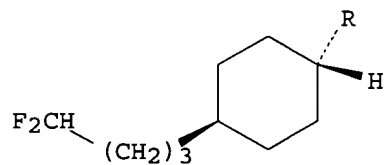
Relative stereochemistry.



RN 171720-60-8 CAPLUS

CN 1,1'-Bicyclohexyl, 4-(3-butenyl)-4'-(4,4-difluorobutyl)-, [trans(trans)]-  
(9CI) (CA INDEX NAME)

Relative stereochemistry.

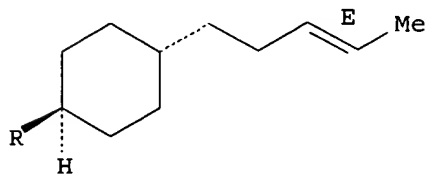
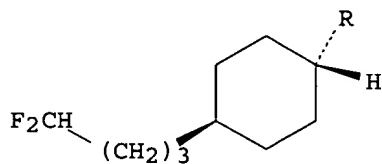


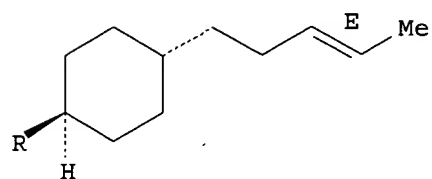
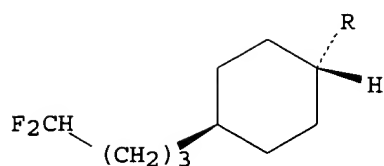
RN 171720-61-9 CAPLUS

CN 1,1'-Bicyclohexyl, 4-(4,4-difluorobutyl)-4'-(3-pentenyl)-,  
[1'.alpha.(trans),4'.beta.(E)]- (9CI) (CA INDEX NAME)

Relative stereochemistry.

Double bond geometry as shown.

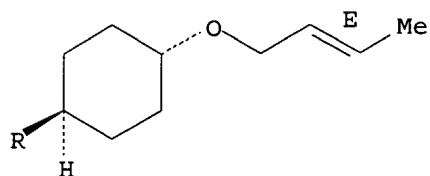
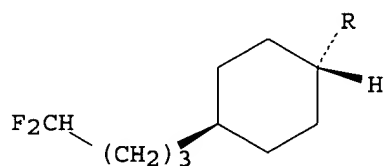




RN 171720-62-0 CAPLUS

CN 1,1'-Bicyclohexyl, 4-(2-butenyloxy)-4'-(4,4-difluorobutyl)-,  
[1.alpha.(trans),4.beta.(E)]- (9CI) (CA INDEX NAME)

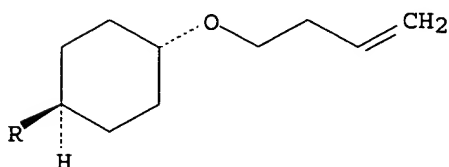
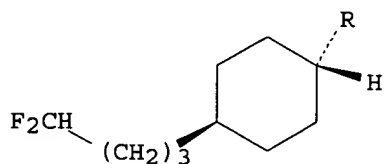
Relative stereochemistry.  
Double bond geometry as shown.



RN 171720-63-1 CAPLUS

CN 1,1'-Bicyclohexyl, 4-(3-butenyloxy)-4'-(4,4-difluorobutyl)-,  
[trans(trans)]- (9CI) (CA INDEX NAME)

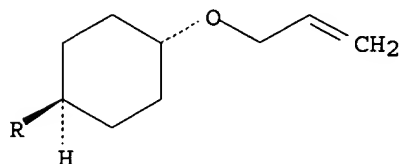
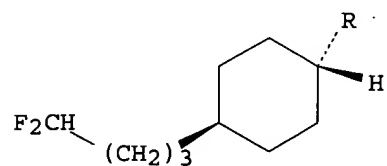
Relative stereochemistry.



RN 171720-66-4 CAPLUS

CN 1,1'-Bicyclohexyl, 4-(4,4-difluorobutyl)-4'-(2-propenyloxy)-,  
[trans(trans)]- (9CI) (CA INDEX NAME)

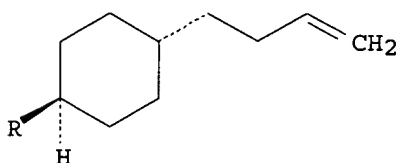
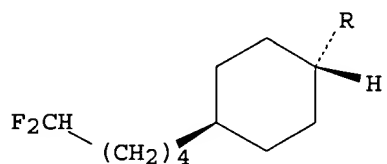
Relative stereochemistry.



RN 171720-67-5 CAPLUS

CN 1,1'-Bicyclohexyl, 4-(3-butenyl)-4'-(5,5-difluoropentyl)-, [trans(trans)]-  
(9CI) (CA INDEX NAME)

Relative stereochemistry.

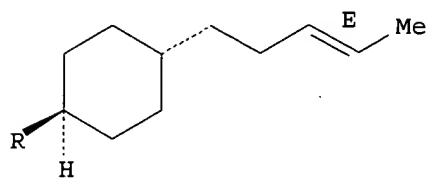
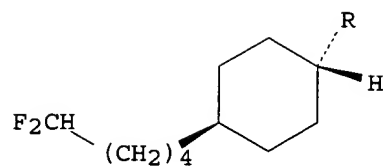


RN 171720-68-6 CAPLUS

CN 1,1'-Bicyclohexyl, 4-(5,5-difluoropentyl)-4'-(3-pentenyl)-,  
[1'.alpha.(trans),4'.beta.(E)]- (9CI) (CA INDEX NAME)

Relative stereochemistry.

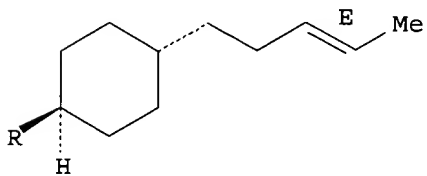
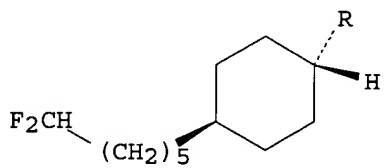
Double bond geometry as shown.



RN 171720-70-0 CAPLUS

CN 1,1'-Bicyclohexyl, 4-(6,6-difluorohexyl)-4'-(3-pentenyl)-,  
[1'.alpha.(trans),4'.beta.(E)]- (9CI) (CA INDEX NAME)

Relative stereochemistry.  
Double bond geometry as shown.

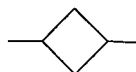


AN 1998:157607 CAPLUS  
 DN 128:277194  
 TI Liquid-crystalline compound, liquid crystal composition, and liquid crystal display device  
 IN Miyasawa, Kazutoshi; Takeuchi, Hiroyuki; Matsui, Akiichi; Hachitani, Norihisa; Takeshita, Fusayuki; Nakagawa, Etsuo  
 PA Chisso Corp., Japan  
 SO Jpn. Kokai Tokkyo Koho, 54 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 IC ICM C07C022-08  
 ICS C07C022-04; C07C043-192; C07C043-225; C07C069-75; C07C069-773; C07D239-26; C07D319-06; C09K019-30; C09K019-34; G02F001-13  
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
 Section cross-reference(s): 25, 75  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 10067694	A2	19980310	JP 1996-242697	19960826
OS	MARPAT 128:277194				
GI					



I



II



III

AB The compd. is represented as R1QR2(Q1Z1)p(Q2Z2)qQ3ZQ4(CH2)mCH:CFX [R1 = H, F, Cl, C1-18 alkyl whose methylene may be substituted with O, S, CH:CH, or C.tplbond.C and H may be substituted with halo, cyano; R2 = covalent bond, C1-8 .alpha.-.omega. alkylene whose methylene and H may be substituted as described; Q = CX1H, CX1X2, CYH, I, II, III; X1, X2 = F, Cl; Y = C1-5 alkyl, Q1-Q3 = (halogen-substituted) 1,4-cyclohexylene, 1,4-cyclohexenylene, 1,4-phenylene, 1,3-dioxane-2,5-diyl, pyridine-2,5-diyl, pyrimidine-2,5-diyl; Z1-Z3 = covalent bond, CH2CH2, CH:CH, C.tplbond.C, CH2O, OCH2, (CH2)4, (CH2)3O, O(CH2)3, (CH2)2CH:CH, CH:CH(CH2)2, CF2O, OCF2, CMeCH:CH, CH:CMe, CF:CF; X = H, F; p, q = 0, 1; m = 0-5; Q4 = trans-1,4-cyclohexylene; each element may be substituted with its isotope.]. The compd. shows sharp threshold characteristics, low viscosity, and good compatibility to other liq.-cryst. components. Liq. crystal compn. contg. the compd. and other components (specific Markush structures are shown in the claim) and liq. crystal display device using the compn. are also claimed.

ST liq cryst compd sharp threshold characteristics; low viscosity liq cryst compd; compatibility liq crystal compn; display liq crystal

IT Liquid crystals  
 (liq.-cryst. compd. having sharp threshold characteristics and low viscosity for liq. crystal compn. showing improved compatibility)

IT Liquid crystal displays  
 (liq.-cryst. compd. having sharp threshold characteristics and low viscosity for liq. crystal compn. showing improved compatibility for)

IT 205510-05-0P 205510-06-1P 205510-08-3P 205510-09-4P 205510-10-7P 205510-11-8P  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
 (liq.-cryst. compd. having sharp threshold characteristics and low viscosity for liq. crystal compn. from)

IT 1895-39-2, Sodium chlorodifluoroacetate 38078-09-0, DAST 38674-58-7  
 56309-94-5 69891-92-5 205510-07-2

RL: RCT (Reactant); RACT (Reactant or reagent)

(liq.-cryst. compd. having sharp threshold characteristics and low viscosity for liq. crystal compn. from)

IT 205507-53-5P 205507-54-6P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(liq.-cryst. compd. having sharp threshold characteristics and low viscosity for liq. crystal compn. showing improved compatibility)

IT 7465-91-0 22692-80-4 38444-13-2 38690-77-6 39969-26-1 40817-08-1

41122-71-8	51518-75-3	52709-83-8	56131-48-7	56131-49-8	
57202-28-5	57202-29-6	57202-30-9	58743-75-2	59855-05-9	
61203-99-4	61204-01-1	61204-03-3	64835-59-2	67589-39-3	
67589-41-7	67589-47-3	67589-52-0	67589-53-1	67589-72-4	
68065-81-6	70567-18-9	70602-95-8	72928-54-2	74240-64-5	
74240-65-6	76802-59-0	76802-61-4	79319-27-0	79912-85-9	
79945-42-9	80944-44-1	80955-71-1	81701-13-5	81711-13-9	
81793-57-9	81793-59-1	82406-82-4	82406-83-5	82492-42-0	
82832-27-7	82832-33-5	82832-34-6	82832-57-3	82985-80-6	
84655-98-1	84656-75-7	84656-77-9	84656-92-8	85312-59-0	
86579-52-4	86778-48-5	86786-89-2	87073-93-6	87260-24-0	
88038-92-0	88416-69-7	88416-84-6	88416-89-1	88639-41-2	
88878-50-6	93743-04-5	95495-03-7	95495-15-1	95495-17-3	
95495-18-4	95906-29-9	95906-34-6	96184-42-8	96624-52-1	
98495-10-4	98495-11-5	98495-16-0	98495-17-1	100980-86-7	
101478-47-1	101559-74-4	102714-93-2	106021-42-5	107215-73-6	
107392-35-8	110881-30-6	112026-68-3	116020-44-1	116090-24-5	
116090-25-6	116090-26-7	116090-30-3	116090-32-5	116090-33-6	
116090-34-7	116090-36-9	116090-37-0	117923-19-0	117923-21-4	
117923-23-6	117943-37-0	118164-50-4	118164-51-5	120893-64-3	
121219-85-0	123787-66-6	123787-68-8	129738-34-7	129738-42-7	
131819-23-3	131819-24-4	131819-25-5	132123-43-4	132123-45-6	
132123-46-7	133914-49-5	133914-50-8	133937-72-1	134412-17-2	
134412-18-3	135734-59-7	135734-60-0	136922-42-4	137019-95-5	
137529-41-0	137529-56-7	137529-63-6	137784-79-3	139136-72-4	
139195-59-8	139420-31-8	142400-92-8	144583-01-7	145305-20-0	
145918-41-8	146781-29-5	146781-31-9	148150-89-4	148462-51-5	
148462-52-6	153227-45-3	153227-50-0	153227-53-3	155041-85-3	
155905-85-4	160148-02-7	173024-31-2	173306-39-3	173476-21-6	
173476-46-5	174303-26-5	175859-23-1	175859-24-2	175859-25-3	
175859-28-6	175859-31-1	176176-33-3	176176-43-5	176176-54-8	
178689-87-7	181369-18-6	181943-57-7	183145-19-9	183388-45-6	
184161-94-2	186320-72-9	196870-32-3	197012-65-0	197012-68-3	
197012-69-4	197012-71-8	205507-55-7	205507-56-8	205507-57-9	
205507-58-0	205507-59-1	205507-60-4	205507-61-5	205507-62-6	
205507-63-7	205507-64-8	205507-65-9	205507-66-0	205507-67-1	
205507-68-2	205507-69-3	205507-70-6	205507-71-7	205507-72-8	
205507-73-9	205507-74-0	205507-75-1	205507-76-2	205507-77-3	
205507-78-4	205507-79-5	205507-80-8	205507-81-9	205507-82-0	
205507-83-1	205507-84-2	205507-85-3	205507-86-4	205507-87-5	
205507-88-6	205507-89-7	205507-90-0	205507-91-1	205507-92-2	
205507-93-3	205507-94-4	205507-95-5	205507-96-6	205507-97-7	
205507-98-8	205507-99-9	205508-00-5	205508-01-6	205508-02-7	
205508-03-8	205508-04-9	205508-05-0	205508-06-1	205508-07-2	
205508-08-3	205508-09-4	205508-10-7	205508-11-8	205508-12-9	
205508-13-0	205508-14-1	205508-15-2	205508-16-3	205508-17-4	
205508-18-5	205508-19-6	205508-20-9			

RL: TEM (Technical or engineered material use); USES (Uses)

(liq.-cryst. compd. having sharp threshold characteristics and low viscosity for liq. crystal compn. showing improved compatibility)

IT 205508-21-0 205508-22-1 205508-23-2 205508-24-3 205508-25-4  
205508-26-5 205508-27-6 205508-28-7 205508-29-8 205508-30-1  
205508-31-2 205508-32-3 205508-33-4 205508-34-5 205508-35-6  
205508-36-7 205508-37-8 205508-38-9 205508-39-0 205508-40-3  
205508-41-4 205508-42-5 205508-43-6 205508-44-7 205508-45-8

205508-46-9	205508-47-0	205508-48-1	205508-49-2	205508-50-5
205508-51-6	205508-52-7	205508-53-8	205508-54-9	205508-55-0
205508-56-1	205508-57-2	205508-58-3	205508-59-4	205508-60-7
205508-61-8	205508-62-9	205508-63-0	205508-64-1	205508-65-2
205508-66-3	205508-67-4	205508-68-5	205508-69-6	205508-70-9
205508-71-0	205508-72-1	205508-73-2	205508-74-3	205508-76-5
205508-77-6	205508-78-7	205508-79-8	205508-80-1	205508-81-2
205508-82-3	205508-83-4	205508-84-5	205508-85-6	205508-86-7
205508-87-8	205508-88-9	205508-89-0	<b>205508-90-3</b>	
205508-91-4	205508-92-5	205508-93-6	205508-94-7	205508-95-8
205508-96-9	205508-97-0	205508-98-1	205508-99-2	205509-00-8
205509-01-9	205509-02-0	205509-03-1	205509-04-2	205509-05-3
205509-06-4	205509-07-5	205509-08-6	205509-09-7	205509-10-0
205509-11-1	205509-12-2	205509-13-3	205509-14-4	205509-15-5
205509-16-6	205509-17-7	205509-18-8	205509-19-9	205509-20-2
205509-21-3	205509-22-4	205509-23-5	205509-24-6	205509-25-7
205509-26-8	205509-27-9	205509-28-0	205509-29-1	205509-30-4
205509-31-5	205509-32-6	205509-33-7	205509-34-8	205509-35-9
205509-36-0	205509-37-1	205509-38-2	205509-39-3	205509-40-6
205509-41-7	205509-42-8	205509-43-9	205509-44-0	205509-45-1
205509-46-2	205509-47-3	205509-48-4	205509-49-5	205509-50-8
205509-51-9	205509-52-0	205509-53-1	205509-54-2	205509-55-3
205509-56-4	205509-57-5	205509-58-6	205509-59-7	205509-60-0
205509-61-1	205509-62-2	205509-63-3	205509-64-4	205509-65-5
205509-66-6	205509-67-7	205509-68-8	205509-69-9	205509-70-2
205509-71-3	205509-72-4	205509-73-5	205509-74-6	205509-75-7
205509-76-8	205509-77-9	205509-78-0	205509-79-1	205509-80-4
205509-81-5	205509-82-6	205509-83-7	205509-84-8	205509-85-9
205509-86-0	205509-87-1	205509-88-2	205509-89-3	205509-90-6
205509-91-7	205509-92-8	205509-93-9	205509-94-0	205509-95-1
205509-96-2	205509-97-3	205509-98-4	205509-99-5	205510-00-5
205510-01-6	205510-02-7	205510-03-8	205510-04-9	205510-12-9
205510-13-0				

RL: TEM (Technical or engineered material use); USES (Uses)

(liq.-cryst. compd. having sharp threshold characteristics and low viscosity for liq. crystal compn. showing improved compatibility)

IT **205508-90-3**

RL: TEM (Technical or engineered material use); USES (Uses)

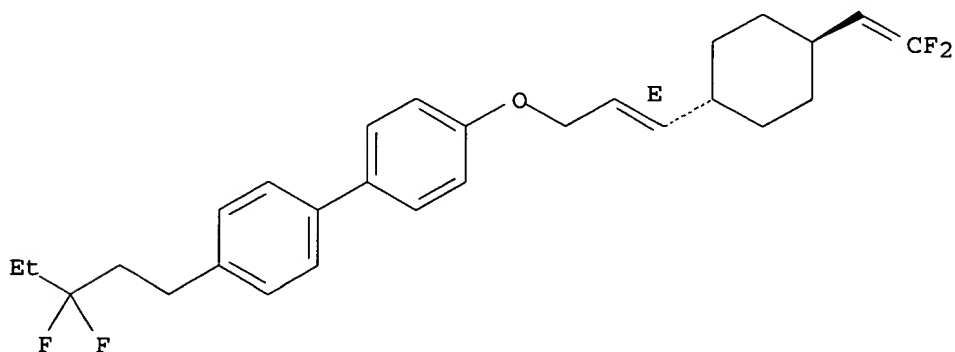
(liq.-cryst. compd. having sharp threshold characteristics and low viscosity for liq. crystal compn. showing improved compatibility)

RN 205508-90-3 CAPLUS

CN 1,1'-Biphenyl, 4-[[3-[4-(2,2-difluoroethenyl)cyclohexyl]-2-propenyl]oxy]-4'-(3,3-difluoropentyl)-, [1.alpha.(E),4.beta.] - (9CI) (CA INDEX NAME)

Relative stereochemistry.

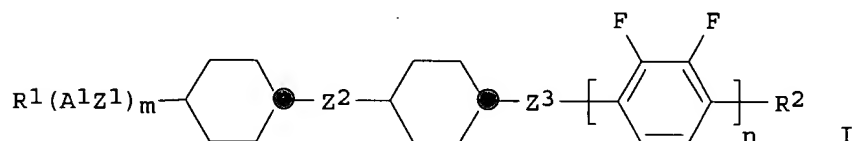
Double bond geometry as shown.



AN 1999:640805 CAPLUS  
 DN 131:279369  
 TI Vinylene and ethyl compounds  
 IN Bremer, Matthias; Pauluth, Detlef; Tarumi, Kazuaki; Krause, Joachim;  
 Heckmeier, Michael  
 PA Merck Patent G.m.b.H., Germany  
 SO PCT Int. Appl., 100 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA German  
 IC ICM C07C025-18  
 ICS C09K019-30; C07C043-225; C07C025-24  
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other  
 Reprographic Processes)  
 Section cross-reference(s): 75

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9950210	A1	19991007	WO 1999-EP2136	19990329
	W: DE, JP, US				
	DE 19814550	A1	19991007	DE 1998-19814550	19980401
	JP 2002509900	T2	20020402	JP 2000-541121	19990329
	US 6468608	B1	20021022	US 2000-646923	20000925
PRAI	DE 1998-19814550	A	19980401		
	WO 1999-EP2136	W	19990329		
OS	MARPAT 131:279369				
GI					



AB The invention relates to vinylene and Et compds. of formula I (R1, R2 = C1-15-alkyl, alkenyl; A1 = trans-1,4-cyclohexylene, 1,4-phenylene, 1,4-cyclohexenylene, 1,4-bicyclo(2,2,2)-octylene, piperidine-1,4-diyl, naphthalene-2,6-diyl, decahydronaphthalene-2,6-diyl, 1,2,3,4-tetrahydronaphthalene-2,6-diyl; Z1, Z2, Z3 = -COO-, -OCO-, -CH2O-, -OCH2-, -CH2CH2-, -CH:CH-, -CF2O-, -OCF2-, -(CH2)4-, single bond, -CL1:CL2-, -CL3L4-CL5L6-; L1-6 = H, F; m = 0, 1; n = 1, 2). The inventive compds. are suitable as components of liq. cryst. media.

ST vinylene ethyl compd liq crystal display

IT Liquid crystals  
 (nematic; vinylene and Et compds. for liq. crystal media)

IT Liquid crystal displays  
 (vinylene and Et compds. for liq. crystal media)

IT 85600-56-2  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (ein liq. crystal mixt. for ECB mode liq. crystal display)

IT 76802-59-0 76802-61-4 80944-44-1 80955-71-1 81711-13-9  
 81936-32-5 85312-59-0 92263-41-7 96624-52-1 97398-80-6  
 98321-58-5 102714-95-4 118164-51-5 121219-85-0 123560-48-5  
 124728-81-0 124729-02-8 133914-49-5 133914-50-8 133937-72-1  
 135734-59-7 135734-60-0 174350-05-1 174350-06-2 174350-08-4  
 245537-88-6  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (in liq. crystal mixt. for ECB mode liq. crystal display)

IT 4009-98-7, Methoxymethyltriphenylphosphoniumchloride 4746-97-8,  
 1,4-Dioxaspiro[4.5]decan-8-one 7529-22-8, N-Methylmorpholine-N-oxide  
 7783-60-0, Sulfur tetrafluoride 51010-74-3, Morpholinosulfur trifluoride



121219-07-6, 2,3-Difluoro-1-ethoxybenzene 135807-96-4 143456-90-0  
245535-16-4 245535-17-5 245536-50-9

RL: RCT (Reactant); RACT (Reactant or reagent)

(prepn. of vinylene and Et compds. for liq. crystal media)

IT 220437-00-3P 220437-02-5P 245530-35-2P 245530-36-3P 245530-37-4P  
245530-38-5P 245535-18-6P 245535-21-1P 245535-22-2P 245536-51-0P  
245536-52-1P 245536-53-2P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)

(prepn. of vinylene and Et compds. for liq. crystal media)

IT 106-98-9P, 1-Butene, preparation 245530-39-6P 245530-40-9P  
245530-41-0P 245530-42-1P 245530-43-2P 245530-44-3P 245530-45-4P  
245530-46-5P 245530-47-6P 245530-48-7P 245530-49-8P 245530-50-1P  
245530-51-2P 245530-52-3P 245530-53-4P 245530-54-5P 245530-55-6P  
245530-57-8P 245530-58-9P 245530-59-0P 245530-60-3P 245530-61-4P  
245530-62-5P 245530-63-6P 245530-64-7P 245530-66-9P 245530-67-0P  
245530-68-1P 245530-69-2P 245530-70-5P 245530-71-6P 245530-72-7P  
245530-73-8P 245530-75-0P 245530-76-1P 245530-78-3P 245530-79-4P  
245530-80-7P 245530-81-8P 245530-83-0P 245530-84-1P 245530-85-2P  
245530-86-3P 245530-87-4P 245530-88-5P 245530-89-6P 245530-90-9P  
245530-91-0P 245530-92-1P 245530-93-2P 245530-95-4P 245530-96-5P  
245530-97-6P 245530-98-7P 245530-99-8P 245531-00-4P 245531-01-5P  
245531-02-6P 245531-03-7P 245531-04-8P 245531-05-9P 245531-06-0P  
245531-07-1P 245531-09-3P 245531-11-7P 245531-12-8P 245531-13-9P  
245531-14-0P 245531-15-1P 245531-16-2P 245531-17-3P 245531-18-4P  
245531-19-5P 245531-20-8P 245531-21-9P 245531-22-0P 245531-23-1P  
245531-24-2P 245531-25-3P 245531-26-4P 245531-28-6P 245531-29-7P  
245531-30-0P 245531-31-1P 245531-32-2P 245531-33-3P 245531-34-4P  
245531-36-6P 245531-37-7P 245531-38-8P 245531-39-9P 245531-40-2P  
245531-41-3P 245531-42-4P 245531-43-5P 245531-45-7P 245531-46-8P  
245531-47-9P 245531-48-0P 245531-49-1P 245531-50-4P 245531-51-5P  
245531-52-6P 245531-53-7P 245531-54-8P 245531-55-9P 245531-56-0P  
245531-57-1P 245531-58-2P 245531-59-3P 245531-61-7P 245531-62-8P  
245531-65-1P 245531-66-2P 245531-67-3P 245531-69-5P 245531-70-8P  
245531-72-0P 245531-74-2P 245531-75-3P 245531-77-5P 245531-78-6P  
245531-80-0P 245531-81-1P 245531-82-2P 245531-83-3P 245531-84-4P  
245531-85-5P 245531-86-6P 245531-87-7P 245531-88-8P 245531-89-9P  
245531-91-3P 245531-92-4P 245531-93-5P 245531-94-6P 245531-95-7P  
245531-97-9P 245531-98-0P 245531-99-1P 245532-01-8P 245532-02-9P  
245532-03-0P 245532-04-1P 245532-05-2P 245532-06-3P 245532-07-4P  
245532-08-5P 245532-09-6P 245532-11-0P 245532-13-2P 245532-14-3P  
245532-15-4P 245532-16-5P 245532-17-6P 245532-18-7P 245532-19-8P  
245532-20-1P 245532-21-2P 245532-22-3P 245532-23-4P 245532-24-5P  
245532-25-6P 245532-28-9P 245532-29-0P 245532-30-3P 245532-31-4P  
245532-32-5P 245532-33-6P 245532-34-7P 245532-35-8P 245532-36-9P  
245532-38-1P 245532-40-5P 245532-41-6P 245532-43-8P 245532-44-9P  
245532-45-0P 245532-46-1P 245532-48-3P 245532-49-4P 245532-50-7P  
245532-51-8P 245532-53-0P 245532-54-1P 245532-55-2P 245532-56-3P  
245532-58-5P 245532-59-6P 245532-60-9P 245532-61-0P 245532-62-1P  
245532-63-2P 245532-64-3P 245532-65-4P 245532-66-5P 245532-68-7P  
245532-69-8P 245532-70-1P 245532-72-3P 245532-73-4P 245532-74-5P  
245532-75-6P 245532-76-7P 245532-77-8P 245532-79-0P 245532-80-3P  
245532-81-4P 245532-82-5P 245532-83-6P 245532-84-7P 245532-87-0P  
245532-88-1P 245532-89-2P 245532-90-5P 245532-93-8P 245532-94-9P  
245532-95-0P 245532-96-1P 245532-97-2P 245532-98-3P 245532-99-4P  
245533-00-0P 245533-01-1P 245533-03-3P 245533-05-5P 245533-06-6P  
245533-07-7P 245533-08-8P 245533-10-2P 245533-11-3P 245533-12-4P  
245533-13-5P 245533-14-6P 245533-16-8P 245533-17-9P 245533-19-1P  
245533-20-4P

RL: SPN (Synthetic preparation); PREP (Preparation)

(prepn. of vinylene and Et compds. for liq. crystal media)

IT 245533-21-5P 245533-22-6P 245533-23-7P 245533-24-8P 245533-25-9P  
245533-27-1P 245533-28-2P 245533-29-3P 245533-30-6P 245533-31-7P  
245533-32-8P 245533-34-0P 245533-35-1P 245533-36-2P 245533-37-3P

245533-39-5P	245533-40-8P	245533-41-9P	245533-42-0P	245533-44-2P
245533-45-3P	245533-46-4P	245533-47-5P	245533-49-7P	245533-50-0P
245533-51-1P	245533-53-3P	245533-54-4P	245533-55-5P	245533-59-9P
245533-60-2P	245533-62-4P	245533-65-7P	245533-67-9P	245533-68-0P
245533-69-1P	245533-70-4P	245533-72-6P	245533-73-7P	245533-74-8P
245533-75-9P	245533-77-1P	245533-78-2P	245533-79-3P	245533-80-6P
245533-81-7P	245533-82-8P	245533-83-9P	245533-84-0P	245533-86-2P
245533-89-5P	245533-90-8P	245533-91-9P	245533-92-0P	245533-93-1P
245533-94-2P	245533-95-3P	245533-96-4P	245533-98-6P	245533-99-7P
245534-00-3P	245534-01-4P	245534-02-5P	245534-03-6P	245534-04-7P
245534-06-9P	245534-07-0P	245534-09-2P	245534-10-5P	245534-11-6P
245534-12-7P	245534-13-8P	245534-14-9P	245534-15-0P	245534-17-2P
245534-18-3P	245534-19-4P	245534-20-7P	245534-23-0P	245534-24-1P
245534-25-2P	245534-26-3P	245534-28-5P	245534-29-6P	245534-30-9P
245534-31-0P	245534-32-1P	245534-33-2P	245534-34-3P	245534-35-4P
245534-36-5P	245534-37-6P	245534-40-1P	245534-41-2P	245534-42-3P
245534-43-4P	245534-44-5P	245534-45-6P	245534-46-7P	245534-47-8P
245534-48-9P	245534-50-3P	245534-51-4P	245534-53-6P	245534-54-7P
245534-55-8P	245534-57-0P	245534-58-1P	245534-59-2P	245534-60-5P
245534-61-6P	245534-62-7P	245534-63-8P	245534-65-0P	245534-66-1P
245534-67-2P	245534-68-3P	245534-69-4P	245534-70-7P	245534-71-8P
245534-72-9P	245534-74-1P	245534-76-3P	245534-77-4P	245534-78-5P
245534-79-6P	245534-80-9P	245534-81-0P	245534-82-1P	245534-83-2P
245534-84-3P	245534-85-4P	245534-86-5P	<b>245534-87-6P</b>	
<b>245534-90-1P</b>	245534-91-2P	245534-92-3P	245534-93-4P	
245534-94-5P	245534-95-6P	245534-96-7P	245534-97-8P	245534-99-0P
245535-00-6P	<b>245535-01-7P</b>	<b>245535-03-9P</b>	245535-04-0P	
245535-05-1P	245535-06-2P	245535-07-3P	245535-08-4P	245535-10-8P
245535-11-9P	245535-12-0P	245535-13-1P	<b>245535-14-2P</b>	
<b>245535-15-3P</b>	245535-23-3P	245535-24-4P	245535-25-5P	
245535-26-6P	245535-27-7P	245535-28-8P	245535-29-9P	245535-31-3P
245535-32-4P	245535-33-5P	245535-34-6P	245535-36-8P	245535-37-9P
245535-38-0P	245535-39-1P	245535-41-5P	245535-42-6P	245535-43-7P
245535-44-8P	245535-45-9P	245535-46-0P	245535-47-1P	245535-50-6P
245535-51-7P	245535-52-8P	245535-53-9P	245535-54-0P	245535-55-1P
245535-56-2P	245535-57-3P	245535-58-4P	245535-60-8P	245535-61-9P
245535-62-0P	245535-63-1P	245535-64-2P	245535-65-3P	245535-67-5P
245535-68-6P	245535-69-7P	245535-71-1P	245535-72-2P	245535-73-3P
245535-74-4P	245535-75-5P	245535-76-6P	245535-77-7P	245535-78-8P
245535-79-9P	245535-80-2P	245535-83-5P	245535-84-6P	245535-85-7P
245535-86-8P	245535-87-9P	245535-88-0P	245535-89-1P	245535-90-4P
245535-92-6P	245535-93-7P	245535-94-8P	245535-95-9P	245535-96-0P
245535-98-2P	245535-99-3P	245536-00-9P	245536-01-0P	245536-03-2P
245536-04-3P	245536-05-4P	245536-07-6P	245536-08-7P	245536-09-8P
245536-10-1P	245536-11-2P	245536-12-3P	245536-13-4P	245536-14-5P
245536-15-6P	245536-16-7P	245536-17-8P	245536-18-9P	

RL: SPN (Synthetic preparation); PREP (Preparation)

(prepn. of vinylene and Et compds. for liq. crystal media)

IT	245536-19-0P	245536-20-3P	245536-21-4P	245536-22-5P	245536-24-7P
	245536-25-8P	245536-26-9P	245536-28-1P	245536-29-2P	245536-30-5P
	245536-31-6P	245536-32-7P	245536-33-8P	245536-34-9P	245536-36-1P
	245536-37-2P	245536-38-3P	245536-39-4P	245536-40-7P	245536-41-8P
	245536-42-9P	245536-43-0P	245536-45-2P	245536-46-3P	245536-47-4P
	245536-49-6P	245536-55-4P	245536-56-5P	245536-57-6P	245536-58-7P
	245536-59-8P	245536-60-1P	245536-61-2P	245536-62-3P	245536-63-4P
	245536-65-6P	245536-66-7P	245536-68-9P	245536-69-0P	245536-70-3P
	245536-71-4P	245536-72-5P	245536-73-6P	245536-75-8P	245536-76-9P
	245536-77-0P	245536-78-1P	245536-79-2P	245536-80-5P	245536-81-6P
	245536-82-7P	245536-85-0P	245536-86-1P	245536-87-2P	245536-88-3P
	245536-89-4P	245536-90-7P	245536-91-8P	245536-92-9P	245536-93-0P
	245536-94-1P	245536-95-2P	245536-97-4P	245536-98-5P	245536-99-6P
	245537-00-2P	245537-01-3P	245537-02-4P	245537-03-5P	245537-05-7P
	245537-06-8P	245537-07-9P	245537-08-0P	245537-09-1P	245537-10-4P
	245537-11-5P	245537-12-6P	245537-13-7P	245537-15-9P	245537-16-0P

245537-17-1P	245537-18-2P	245537-19-3P	245537-20-6P	245537-21-7P
245537-23-9P	245537-24-0P	245537-25-1P	245537-26-2P	245537-27-3P
245537-28-4P	245537-29-5P	245537-30-8P	245537-31-9P	245537-33-1P
245537-34-2P	245537-35-3P	245537-36-4P	245537-37-5P	245537-38-6P
245537-39-7P	245537-40-0P	245537-41-1P	245537-42-2P	245537-44-4P
245537-45-5P	245537-46-6P	245537-47-7P	245537-48-8P	245537-49-9P
245537-50-2P	245537-51-3P	245537-52-4P	245537-53-5P	245537-54-6P
245537-55-7P	245537-56-8P	245537-57-9P	245537-58-0P	245537-59-1P
245537-60-4P	245537-62-6P	245537-63-7P	245537-64-8P	245537-65-9P
245537-66-0P	245537-67-1P	245537-68-2P	245537-69-3P	245537-71-7P
245537-72-8P	245537-73-9P	245537-74-0P	245537-75-1P	245537-76-2P
245537-77-3P	245537-78-4P	245537-80-8P	245537-81-9P	245537-82-0P
245537-83-1P	245537-84-2P	245537-85-3P		

RL: SPN (Synthetic preparation); PREP (Preparation)  
(prepn. of vinylene and Et compds. for liq. crystal media)

RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Asahi Glass Co Ltd; EP 0560382 A 1993 CAPLUS
- (2) Asahi Glass Co Ltd Japan; JP 05070382 A CAPLUS
- (3) Asahi Glass Co Ltd Japan; JP 05085972 A CAPLUS
- (4) Asahi Glass Co Ltd Japan; JP 05279278 A CAPLUS
- (5) Kumai, S; 1994, 16, CAPLUS
- (6) Merck Patent Gmbh; DE 4205970 A 1993 CAPLUS
- (7) Merck Patent Gmbh; DE 19707154 A 1997 CAPLUS
- (8) Shintani, S; 1993, 14, CAPLUS
- (9) Shintani, S; 1993, 26, CAPLUS

IT 245534-87-6P 245534-90-1P 245535-01-7P

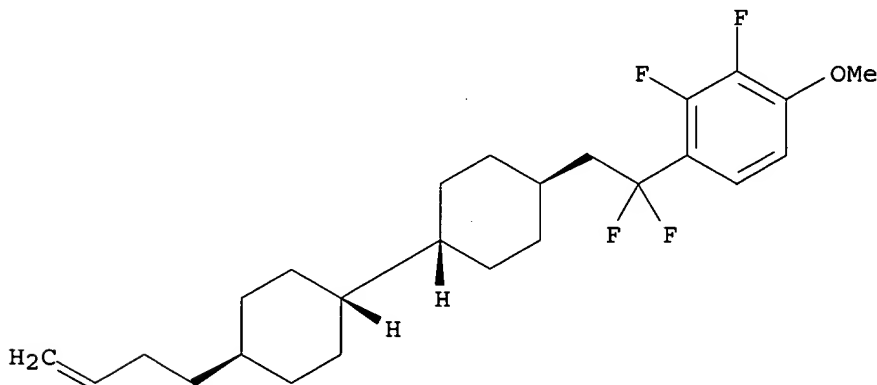
245535-03-9P 245535-14-2P 245535-15-3P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(prepn. of vinylene and Et compds. for liq. crystal media)

RN 245534-87-6 CAPLUS

CN Benzene, 1-[2-[(trans,trans)-4'-(3-butenyl)[1,1'-bicyclohexyl]-4-yl]-1,1-difluoroethyl]-2,3-difluoro-4-methoxy- (9CI) (CA INDEX NAME)

Relative stereochemistry.

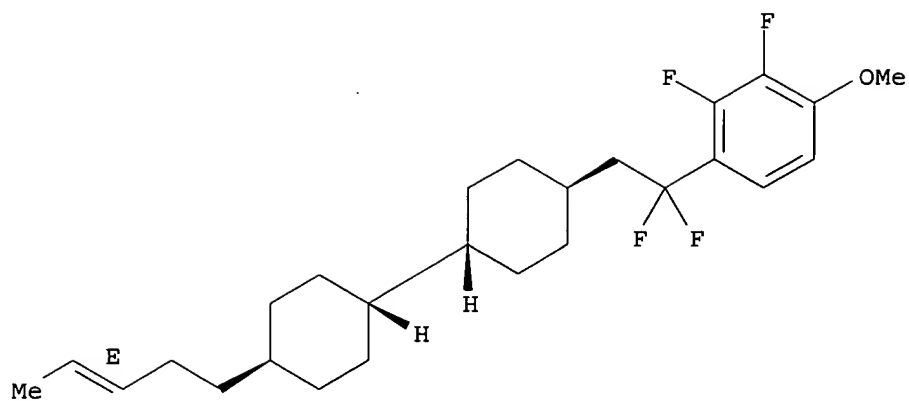


RN 245534-90-1 CAPLUS

CN Benzene, 1-[1,1-difluoro-2-[(trans,trans)-4'-(3E)-3-pentenyl[1,1'-bicyclohexyl]-4-yl]ethyl]-2,3-difluoro-4-methoxy- (9CI) (CA INDEX NAME)

Relative stereochemistry.

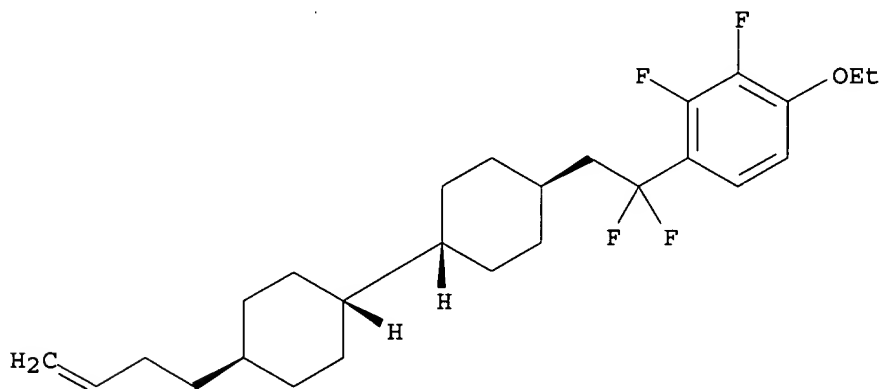
Double bond geometry as shown.



RN 245535-01-7 CAPLUS

CN Benzene, 1-[2-[(trans,trans)-4'-(3-butenyl)[1,1'-bicyclohexyl]-4-yl]-1,1-difluoroethyl]-4-ethoxy-2,3-difluoro- (9CI) (CA INDEX NAME)

Relative stereochemistry.

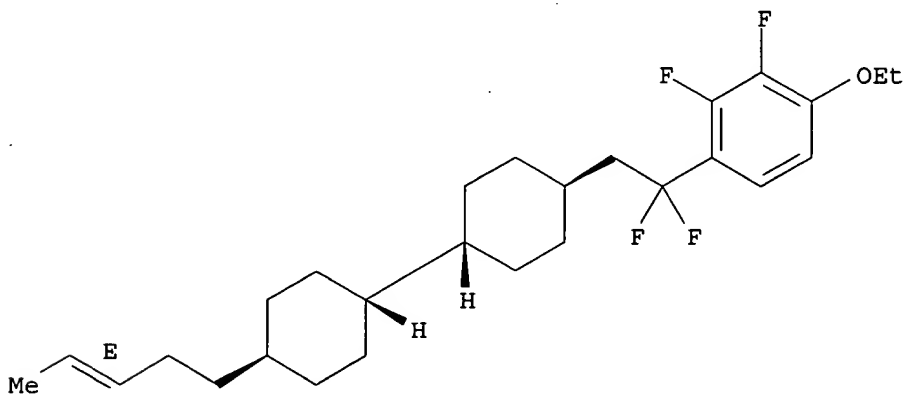


RN 245535-03-9 CAPLUS

CN Benzene, 1-[1,1-difluoro-2-[(trans,trans)-4'-(3E)-3-pentenyl[1,1'-bicyclohexyl]-4-yl]ethyl]-4-ethoxy-2,3-difluoro- (9CI) (CA INDEX NAME)

Relative stereochemistry.

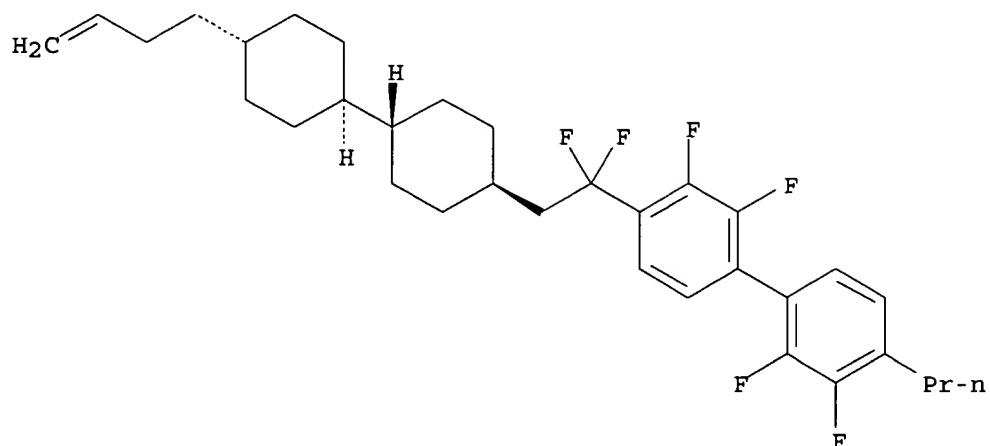
Double bond geometry as shown.



RN 245535-14-2 CAPLUS

CN 1,1'-Biphenyl, 4-[2-[(trans,trans)-4'-(3-butenyl)[1,1'-bicyclohexyl]-4-yl]-1,1-difluoroethyl]-2,2',3,3'-tetrafluoro-4'-propyl- (9CI) (CA INDEX NAME)

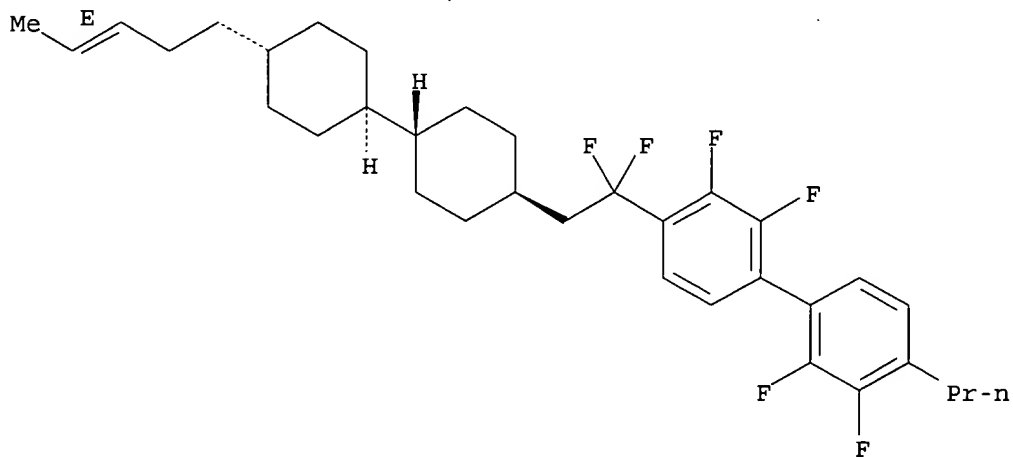
Relative stereochemistry.



RN 245535-15-3 CAPLUS

CN 1,1'-Biphenyl, 4-[1,1-difluoro-2-[(trans,trans)-4'-(3E)-3-pentenyl[1,1'-bicyclohexyl]-4-yl]ethyl]-2,2',3,3'-tetrafluoro-4'-propyl- (9CI) (CA INDEX NAME)

Relative stereochemistry.  
Double bond geometry as shown.



AN 2002:716753 CAPLUS  
 DN 137:255487  
 TI Alkyl silane liquid crystal compounds  
 IN Wand, Michael; Gough, Neil; More, Kundalika; Thurmes, William N.; Chen, Xin-Hua  
 PA USA  
 SO U.S. Pat. Appl. Publ., 51 pp.  
 CODEN: USXXCO  
 DT Patent  
 LA English  
 IC ICM C09K019-34  
 ICS C09K019-20; C07F007-02; C07F007-21  
 NCL 252299610  
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
 Section cross-reference(s): 75  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2002130299	A1	20020919	US 2001-754033	20010103
PRAI	US 2000-256063P	P	20001215		
AB	The present invention relates to compds. useful as components of LC and FLC compns. which in turn are useful in the manuf. of optical devices. Compds. of this invention have a silane tail, which can contain more than one Si. Compds. of this invention can include those with disilane tails. The invention provides LC compns. contg. one or more of the silanes of this invention. Addn. of one or more of the compds. of this invention to LC compns. can result in significant improvement in optical or LC properties. In particular, the compds. of this invention can significantly lower the m.p., f.p. or both of an LC compn. resulting in significant improvement in device stability.				
ST	liq crystal optical device display				
IT	Liquid crystal displays (alkyl silane liq. crystal compds. for)				
IT	Liquid crystals (ferroelec.; prepn. of alkyl silane liq. crystal compds. for liq crystal display)				
IT	Ferroelectric materials (liq.-crystal; prepn. of alkyl silane liq. crystal compds. for liq crystal display)				
IT	Liquid crystals (nematic; prepn. of alkyl silane liq. crystal compds. for liq crystal display)				
IT	Liquid crystals (smectic A; alkyl silane liq. crystal compds.)				
IT	Liquid crystals (smectic C; prepn. of alkyl silane liq. crystal compds. for liq crystal display)				
IT	402860-34-8P	460359-01-7P	460359-02-8P	460359-03-9P	460359-04-0P
	460359-05-1P	460359-06-2P			
	RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (alkyl silane liq. crystal compds. for liq crystal display)				
IT	57202-41-2	57202-54-7	57202-58-1	121083-93-0	121218-85-7
	121218-90-4	126163-69-7	155468-60-3	155468-61-4	308107-81-5
	460359-38-0	460359-40-4	460359-41-5	460359-42-6	460359-44-8
	460359-45-9	460359-46-0	460359-52-8	460359-53-9	460359-56-2
	RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses) (alkyl silane liq. crystal compds. for liq crystal display)				
IT	460359-18-6P	460359-20-0P	460359-21-1P	460359-22-2P	460359-24-4P
	460359-26-6P	460359-28-8P	460359-31-3P	460359-32-4P	460359-33-5P
	460359-34-6P	460359-35-7P	460359-36-8P	460359-37-9P	460359-96-0P
	RL: SPN (Synthetic preparation); TEM (Technical or engineered material				

use); PREP (Preparation); USES (Uses)

(alkyl silane liq. crystal compds. for liq crystal display)

IT 57202-48-9 120091-49-8 460359-39-1 **460359-43-7** 460359-47-1  
460359-54-0 460359-55-1

RL: TEM (Technical or engineered material use); USES (Uses)

(alkyl silane liq. crystal compds. for liq crystal display)

IT 1066-35-9, Chlorodimethylsilane 1066-54-2, (Trimethylsilyl)acetylene  
2344-80-1, Chloromethyltrimethylsilane 2695-48-9, 8-Bromo-1-octene  
13170-43-9, (Trimethylsilyl)methylmagnesium chloride 17196-12-2  
30102-73-9 58415-63-7, 4-(5-Octylpyrimidin-2-yl)-phenol 68535-55-7,  
2-(4-Hydroxyphenyl)pyrimidine 110203-06-0, 4-(5-Decyloxy-pyrimidin-2-yl)-  
phenol 124410-14-6 149396-77-0, 6-(4-Octyl-phenyl)-pyridin-3-ol  
179817-73-3 460359-00-6 460359-19-7 460359-23-3 460359-25-5  
460359-27-7 460359-29-9 460359-30-2

RL: RCT (Reactant); RACT (Reactant or reagent)

(prepn. of alkyl silane liq. crystal compds. for liq crystal display)

IT 1189-75-9P 28681-61-0P 460359-07-3P 460359-08-4P 460359-09-5P  
460359-10-8P 460359-11-9P 460359-12-0P 460359-13-1P 460359-14-2P  
460359-15-3P 460359-16-4P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)

(prepn. of alkyl silane liq. crystal compds. for liq crystal display)

IT 460359-17-5P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material  
use); PREP (Preparation); USES (Uses)

(prepn. of alkyl silane liq. crystal compds. for liq crystal display)

IT **460359-43-7**

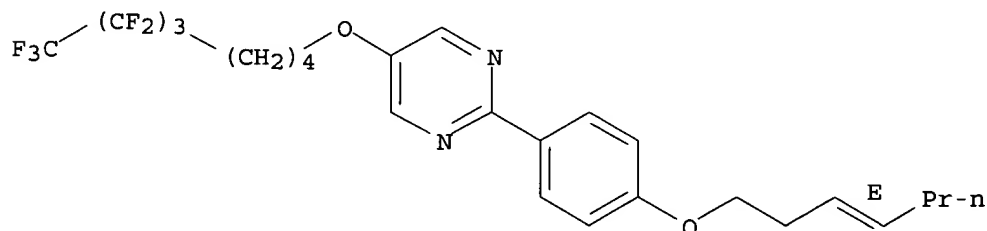
RL: TEM (Technical or engineered material use); USES (Uses)

(alkyl silane liq. crystal compds. for liq crystal display)

RN 460359-43-7 CAPLUS

CN Pyrimidine, 2-[4-[(3E)-3-heptenyloxy]phenyl]-5-[(5,5,6,6,7,7,8,8,8-  
nonafluorooctyl)oxy]- (9CI) (CA INDEX NAME)

Double bond geometry as shown.



**WEST**[Help](#)[Logout](#)[Interrupt](#)[Main Menu](#)[Search Form](#)[Posting Counts](#)[Show S Numbers](#)[Edit S Numbers](#)[Preferences](#)[Cases](#)**Search Results -**

Term	Documents
MDX.DWPI,TDBD,EPAB,JPAB,USPT.	619
MDXES	0
195?	0
195A.DWPI,TDBD,EPAB,JPAB,USPT.	869
195B.DWPI,TDBD,EPAB,JPAB,USPT.	529
195C.DWPI,TDBD,EPAB,JPAB,USPT.	191
195D.DWPI,TDBD,EPAB,JPAB,USPT.	150
195E.DWPI,TDBD,EPAB,JPAB,USPT.	61
195F.DWPI,TDBD,EPAB,JPAB,USPT.	39
195G.DWPI,TDBD,EPAB,JPAB,USPT.	82
195H.DWPI,TDBD,EPAB,JPAB,USPT.	39
(MDX 195?).USPT,JPAB,EPAB,DWPI,TDBD.	0

There are more results than shown above. [Click here to view the entire set.](#)

Database:

US Patents Full-Text Database  
US Pre-Grant Publication Full-Text Database  
JPO Abstracts Database  
EPO Abstracts Database  
Derwent World Patents Index  
IBM Technical Disclosure Bulletins

Search:

L6

[Refine Search](#)[Recall Text](#)[Clear](#)**Search History**

DATE: Thursday, October 24, 2002   [Printable Copy](#)   [Create Case](#)



**Set Name Query**  
side by side**Hit Count Set Name**  
result set*DB=USPT,JPAB,EPAB,DWPI,TDBD; PLUR=YES; OP=ADJ*

<u>L6</u>	mdx 195?	0	<u>L6</u>
<u>L5</u>	fluorinated alkyl same alkenyl same liquid crystal\$	3	<u>L5</u>
<u>L4</u>	florinated alkyl same alkenyl same liquid crystal\$	0	<u>L4</u>
<u>L3</u>	L1 and wand-\$.in.	0	<u>L3</u>
<u>L2</u>	L1 and Gough-\$.in.	1	<u>L2</u>
<u>L1</u>	159? and liquid crystal\$	963	<u>L1</u>

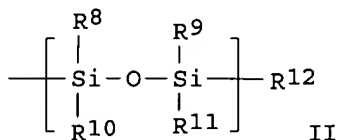
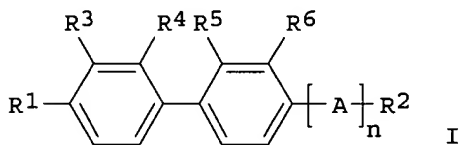
END OF SEARCH HISTORY

=> dis 1-3 all hitstr

7-10-03

L4 ANSWER 1 OF 3 CAPLUS COPYRIGHT 2003 ACS  
AN 2003:376798 CAPLUS  
DN 138:393143  
TI Liquid crystalline compounds containing biphenyl core for liquid crystal mixtures and devices  
IN Goodby, John William; Toyne, Kenneth Johnson; Hird, Michael; Dong, Chu Chuan; Richards, Robert Dadd Campling  
PA Qinetiq Limited, UK  
SO PCT Int. Appl., 54 pp.  
CODEN: PIXXD2  
DT Patent  
LA English  
IC ICM C07C043-225  
ICS C07F007-18; C07C069-63; C07C069-76; C07D319-04; C09K019-12; C09K019-40; C09K019-34  
CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
Section cross-reference(s): 75  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003040074	A1	20030515	WO 2002-GB5045	20021107
	W: JP, KR, US				
	RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR				
PRAI	GB 2001-26844	A	20011108		
OS	MARPAT 138:393143				
GI					



AB Disclosed is a compd. of formula I or its dimer (R1, R2 = alkyl; alkenyl; alkynyl; group of sub-formula (i): -(O)m-(CH2)p-R7, where m = 0, 1; p = 1-12, R7 = -CqX2q+1, q = 1-12, X = fluoro; group of sub-formula II (k = 1-10; R8, R9 R10, R11, R12 = alkyl, alkenyl, aryl); provided that at least one of R1 or R2 is a group of sub-formula (i); R3, R4, R5, R6 = H, halogen; and in particular fluorine; n = 0-1; A is a ring structure as specified further in the claims). Compds. of the formula I have a stabilized Smectic A phase and thus may be particularly useful in liq. crystal mixts. to either induce or generate a smectic A phase, or to provide for a wider temp. range smectic A phase for purposes of alignment or electronic devices. Also some inventive compds. in have inherently low viscosities making them suitable for ferroelec. mixts.

ST liq cryst biphenyl core compd smectic A phase  
IT Liquid crystals  
(prepn. and properties of liq. cryst. compds. contg. biphenyl core)  
IT Liquid crystal displays

(prepn. and properties of liq. cryst. compds. contg. biphenyl core in relation to)

IT 3792-02-7P 83310-93-4P 124728-66-1P 402860-04-2P 402860-06-4P  
526212-99-7P 526213-01-4P 526213-04-7P 526213-05-8P 526213-07-0P  
526213-10-5P 526213-12-7P 526213-13-8P 526213-14-9P  
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(prepn. and properties of liq. cryst. compds. contg. biphenyl core)

IT 36096-97-6P 116486-78-3P 134052-01-0P 159142-57-1P 181042-39-7P,  
7,7,8,8,9,9,10,10,10-Nonafluorodecan-1-ol 219557-62-7P 485844-50-6P  
526213-03-6P 526213-06-9P 526213-08-1P 526213-09-2P 526213-15-0P  
526213-16-1P 526213-17-2P 526213-18-3P 526213-19-4P  
**526213-21-8P 526213-23-0P** 526213-26-3P 526213-27-4P  
526213-28-5P 526213-29-6P 526213-30-9P 526213-31-0P 526213-32-1P  
526213-33-2P 526213-34-3P 526213-35-4P 526213-36-5P 526213-38-7P  
526213-40-1P 526213-41-2P 526213-42-3P 526213-43-4P 526213-45-6P  
526213-46-7P 526213-47-8P 526213-48-9P 526213-49-0P 526213-50-3P  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(prepn. and properties of liq. cryst. compds. contg. biphenyl core)

IT 106-41-2, 4-Bromophenol 423-39-2, Perfluorobutyl iodide 627-27-0,  
3-Buten-1-ol 927-74-2, 3-Butyn-1-ol 1000-05-1, 1,1,3,3,5,5,7,7-  
Octamethyltetrasiloxane 1438-82-0, Pentamethyldisiloxane 6418-38-8,  
2,3-Difluorophenol 29558-77-8 32653-34-2 51554-94-0 63619-66-9,  
4-Bromo-4'-octyloxybiphenyl 70648-12-3 96693-06-0 121219-16-7,  
2,3-Difluorophenylboronic acid 121219-22-5, 2,3-Difluoro-4-  
octyloxyphenyl boronic acid 121554-09-4, 4-Octyloxyphenylboronic acid  
126334-38-1, 2,3-Difluoro-4-nonylphenyl boronic acid 154024-87-0  
156684-82-1, 2-(4-Bromophenyl)-5-nonyl-1,3-dioxane 156685-56-2  
179817-66-4 179817-67-5 526213-11-6 526213-25-2  
RL: RCT (Reactant); RACT (Reactant or reagent)

(prepn. and properties of liq. cryst. compds. contg. biphenyl core)

RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Dainippon Ink & Chem Inc; JP 11246451 A 1999 CAPLUS
- (2) de Givenchy; MOLECULAR CRYSTALS AND LIQUID CRYSTALS SCIENCE AND TECHNOLOGY, SECTION A: MOLECULAR CRYSTALS AND LIQUID CRYSTALS 1999, V332, P2519 CAPLUS
- (3) Hoechst Ag; DE 4427199 A 1996 CAPLUS
- (4) Kelly, S; MOLECULAR CRYSTALS AND LIQUID CRYSTALS SCIENCE AND TECHNOLOGY, SECTION A: MOLECULAR CRYSTALS AND LIQUID CRYSTALS 2001, V364, P873 CAPLUS
- (5) Merck Patent Gmbh; WO 9001021 A 1990 CAPLUS
- (6) Merck Patent Gmbh; WO 9213928 A 1992 CAPLUS
- (7) Merck Patent Gmbh; DE 4215277 A 1993 CAPLUS
- (8) Merck Patent Gmbh; DE 4222371 A 1994 CAPLUS
- (9) Merck Patent Gmbh; WO 9605159 A 1996 CAPLUS
- (10) Minnesota Mining And Manufacturing Co; EP 0255236 A 1988 CAPLUS
- (11) Skelton, G; LIQUID CRYSTALS 2001, V28(5), P749 CAPLUS
- (12) The Secretary Of State For Defence; WO 0039062 A 2000 CAPLUS
- (13) Yusuke, K; POLYMER BULLETIN 1996, V36(6), P653

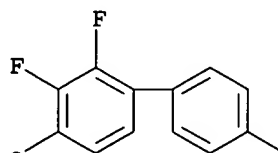
IT **526213-21-8P 526213-23-0P**

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(prepn. and properties of liq. cryst. compds. contg. biphenyl core)

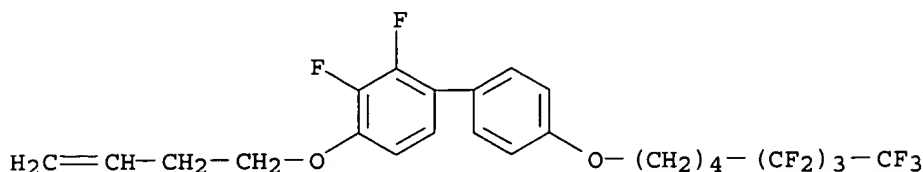
RN 526213-21-8 CAPLUS

CN 1,1'-Biphenyl, 4'-(3-butenyloxy)-2,3-difluoro-4-[(5,5,6,6,7,7,8,8,8-nonafluorooctyl)oxy] - (9CI) (CA INDEX NAME)



F<sub>3</sub>C-(CF<sub>2</sub>)<sub>3</sub>-(CH<sub>2</sub>)<sub>4</sub>-O

RN 526213-23-0 CAPLUS  
 CN 1,1'-Biphenyl, 4-(3-butenyloxy)-2,3-difluoro-4'-[(5,5,6,6,7,7,8,8,8-nonafluorooctyl)oxy]- (9CI) (CA INDEX NAME)



L4 ANSWER 2 OF 3 CAPLUS COPYRIGHT 2003 ACS  
 AN 2002:978521 CAPLUS  
 DN 138:64125  
 TI Liquid crystalline materials containing perfluoroalkyl and alkenyl tail groups  
 IN Gough, Neil; Vohra, Rohini; Wand, Michael; More, Kundalika; Thurmes, William N.  
 PA USA  
 SO U.S. Pat. Appl. Publ., 46 pp.  
 CODEN: USXXCO  
 DT Patent  
 LA English  
 IC ICM C09K019-34  
 ICS C09K019-32; C09K019-30; C09K019-20; C09K019-12; C07D239-02  
 NCL 252299610; 544298000; 252299630; 252299620; 252299640; 252299660; 252299670; 544334000  
 CC 75-11 (Crystallography and Liquid Crystals)  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2002195585	A1	20021226	US 2001-754034	20010103
PRAI	US 2000-255984P	P	20001215		
OS	MARPAT 138:64125				

AB This invention describes compds. that are useful as components in liq. crystal compns., particularly in ferroelec. liq. crystal compns. Compds. of the invention are rod-like mols. with a mesogenic (generally linear) core to which an alkene tail and an alkyl or alkoxy tail with a perfluoroalkyl terminal portion are bonded. Compds. of the invention can contain a variety of 1, 2 or 3 ring cores, wherein the rings maybe arom. or alicyclic. Alkenes of the invention are useful as components to improve LC properties of mixts., for example, to lower m.p. or to lower f.p., of LC compns.

ST ferroelec liq crystal perfluoroalkyl alkenyl tail group

IT Liquid crystals  
 (ferroelec.; liq. cryst. materials contg. perfluoroalkyl and alkenyl tail groups)

IT Ferroelectric materials  
 (liq.-crystal; liq. cryst. materials contg. perfluoroalkyl and alkenyl tail groups)

IT Liquid crystals  
 (nematic; liq. cryst. materials contg. perfluoroalkyl and alkenyl tail groups)

IT Liquid crystals  
 (smectic; liq. cryst. materials contg. perfluoroalkyl and alkenyl tail groups)

IT 479201-26-8P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(liq. cryst. materials contg. perfluoroalkyl and alkenyl tail groups)

IT 57202-38-7 57202-39-8 57202-48-9 57202-54-7 57202-58-1

120091-49-8	121083-93-0	121218-85-7	121218-90-4	121235-87-8
126162-76-3	126163-69-7	155468-60-3	308107-81-5	402860-34-8
439866-35-0	460359-38-0	460359-39-1	460359-40-4	460359-42-6
<b>460359-43-7</b>	460359-44-8	460359-45-9	460359-51-7	
479201-27-9	479201-28-0	479201-29-1	479201-30-4	479201-31-5
479201-32-6	479201-33-7	479201-34-8	479201-35-9	479201-36-0
479201-37-1	479201-38-2			

RL: TEM (Technical or engineered material use); USES (Uses)  
(liq. cryst. materials contg. perfluoroalkyl and alkenyl tail groups)

IT 2108-05-6, trans-3-Hepten-1-ol 2695-48-9, 8-Bromo-1-octene 20125-84-2  
56578-18-8, trans-5-Decen-1-ol 64275-73-6 460359-29-9

RL: RCT (Reactant); RACT (Reactant or reagent)  
(synthesis of liq. cryst. materials contg. perfluoroalkyl and alkenyl tail groups)

IT **479201-23-5P 479201-24-6P 479201-25-7P**

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(synthesis of liq. cryst. materials contg. perfluoroalkyl and alkenyl tail groups)

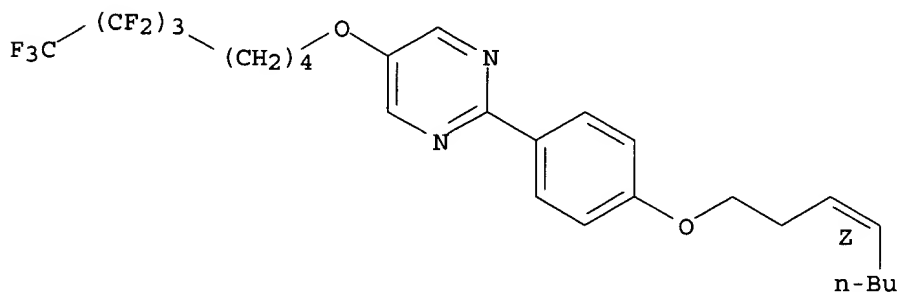
IT **479201-26-8P**

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(liq. cryst. materials contg. perfluoroalkyl and alkenyl tail groups)

RN 479201-26-8 CAPLUS

CN Pyrimidine, 5-[(5,5,6,6,7,7,8,8,8-nonafluorooctyl)oxy]-2-[4-[(3Z)-3-octenyloxy]phenyl]- (9CI) (CA INDEX NAME)

Double bond geometry as shown.



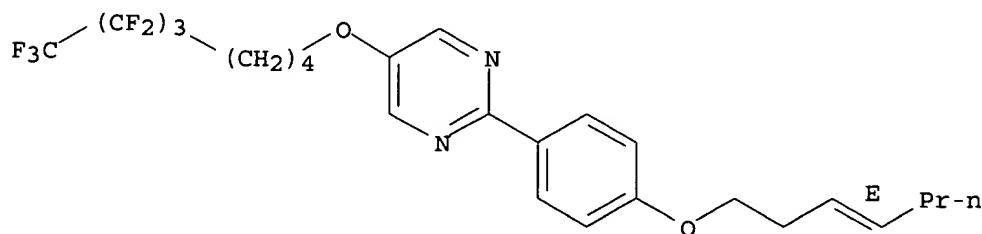
IT **460359-43-7**

RL: TEM (Technical or engineered material use); USES (Uses)  
(liq. cryst. materials contg. perfluoroalkyl and alkenyl tail groups)

RN 460359-43-7 CAPLUS

CN Pyrimidine, 2-[4-[(3E)-3-heptenyloxy]phenyl]-5-[(5,5,6,6,7,7,8,8,8-nonafluorooctyl)oxy]- (9CI) (CA INDEX NAME)

Double bond geometry as shown.



IT **479201-23-5P 479201-24-6P 479201-25-7P**

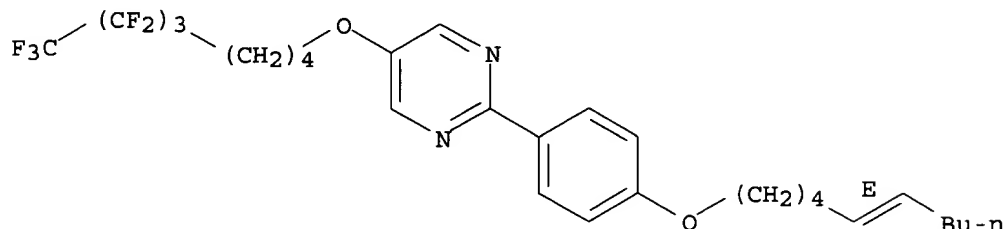
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(synthesis of liq. cryst. materials contg. perfluoroalkyl and alkenyl

tail groups)

RN 479201-23-5 CAPLUS

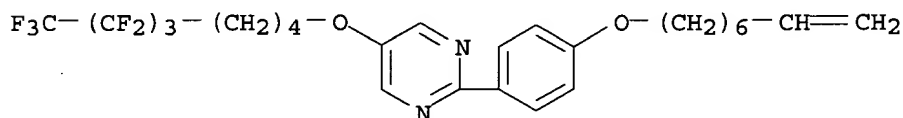
CN Pyrimidine, 2-[4-[(5E)-5-decenyloxy]phenyl]-5-[(5,5,6,6,7,7,8,8,8-nonafluorooctyl)oxy]- (9CI) (CA INDEX NAME)

Double bond geometry as shown.



RN 479201-24-6 CAPLUS

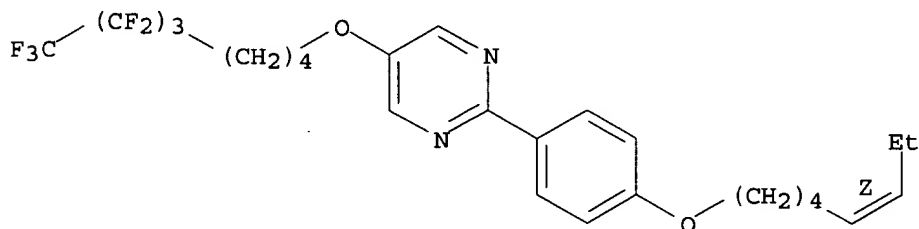
CN Pyrimidine, 5-[(5,5,6,6,7,7,8,8,8-nonafluorooctyl)oxy]-2-[4-(7-octenyloxy)phenyl]- (9CI) (CA INDEX NAME)



RN 479201-25-7 CAPLUS

CN Pyrimidine, 5-[(5,5,6,6,7,7,8,8,8-nonafluorooctyl)oxy]-2-[4-[(5Z)-5-octenyloxy]phenyl]- (9CI) (CA INDEX NAME)

Double bond geometry as shown.



L4 ANSWER 3 OF 3 CAPLUS COPYRIGHT 2003 ACS

AN 2002:716753 CAPLUS

DN 137:255487

TI Alkyl silane liquid crystal compounds

IN Wand, Michael; Gough, Neil; More, Kundalika; Thurmes, William N.; Chen, Xin-Hua

PA USA

SO U.S. Pat. Appl. Publ., 51 pp.

CODEN: USXXCO

DT Patent

LA English

IC ICM C09K019-34

ICS C09K019-20; C07F007-02; C07F007-21

NCL 252299610

CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 75

FAN.CNT 1

PATENT NO.

KIND DATE

APPLICATION NO. DATE

*Copied by*

PI	US 2002130299	A1	20020919	US 2001-754033	20010103
PRAI	US 2000-256063P	P	20001215		
OS	MARPAT 137:255487				
AB	The present invention relates to compds. useful as components of LC and FLC compns. which in turn are useful in the manuf. of optical devices. Compds. of this invention have a silane tail, which can contain more than one Si. Compds. of this invention can include those with disilane tails. The invention provides LC compns. contg. one or more of the silanes of this invention. Addn. of one or more of the compds. of this invention to LC compns. can result in significant improvement in optical or LC properties. In particular, the compds. of this invention can significantly lower the m.p., f.p. or both of an LC compn. resulting in significant improvement in device stability.				
ST	liq crystal optical device display				
IT	Liquid crystal displays (alkyl silane liq. crystal compds. for)				
IT	Liquid crystals (ferroelec.; prepn. of alkyl silane liq. crystal compds. for liq crystal display)				
IT	Ferroelectric materials (liq.-crystal; prepn. of alkyl silane liq. crystal compds. for liq crystal display)				
IT	Liquid crystals (nematic; prepn. of alkyl silane liq. crystal compds. for liq crystal display)				
IT	Liquid crystals (smectic A; alkyl silane liq. crystal compds.)				
IT	Liquid crystals (smectic C; prepn. of alkyl silane liq. crystal compds. for liq crystal display)				
IT	402860-34-8P	460359-01-7P	460359-02-8P	460359-03-9P	460359-04-0P
	460359-05-1P	460359-06-2P			
	RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (alkyl silane liq. crystal compds. for liq crystal display)				
IT	57202-41-2	57202-54-7	57202-58-1	121083-93-0	121218-85-7
	121218-90-4	126163-69-7	155468-60-3	155468-61-4	308107-81-5
	460359-38-0	460359-40-4	460359-41-5	460359-42-6	460359-44-8
	460359-45-9	460359-46-0	460359-52-8	460359-53-9	460359-56-2
	RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses) (alkyl silane liq. crystal compds. for liq crystal display)				
IT	460359-18-6P	460359-20-0P	460359-21-1P	460359-22-2P	460359-24-4P
	460359-26-6P	460359-28-8P	460359-31-3P	460359-32-4P	460359-33-5P
	460359-34-6P	460359-35-7P	460359-36-8P	460359-37-9P	460359-96-0P
	RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (alkyl silane liq. crystal compds. for liq crystal display)				
IT	57202-48-9	120091-49-8	460359-39-1	460359-43-7	460359-47-1
	460359-54-0	460359-55-1			
	RL: TEM (Technical or engineered material use); USES (Uses) (alkyl silane liq. crystal compds. for liq crystal display)				
IT	1066-35-9, Chlorodimethylsilane	1066-54-2, (Trimethylsilyl)acetylene			
	2344-80-1, Chloromethyltrimethylsilane	2695-48-9, 8-Bromo-1-octene			
	13170-43-9, (Trimethylsilyl)methylmagnesium chloride	17196-12-2			
	30102-73-9	58415-63-7, 4-(5-Octylpyrimidin-2-yl)-phenol	68535-55-7,		
	2-(4-Hydroxyphenyl)pyrimidine	110203-06-0, 4-(5-Decyloxy-pyrimidin-2-yl)-phenol	124410-14-6	149396-77-0, 6-(4-Octyl-phenyl)-pyridin-3-ol	
	179817-73-3	460359-00-6	460359-19-7	460359-23-3	460359-25-5
	460359-27-7	460359-29-9	460359-30-2		
	RL: RCT (Reactant); RACT (Reactant or reagent) (prepn. of alkyl silane liq. crystal compds. for liq crystal display)				
IT	1189-75-9P	28681-61-0P	460359-07-3P	460359-08-4P	460359-09-5P

460359-10-8P 460359-11-9P 460359-12-0P 460359-13-1P 460359-14-2P  
460359-15-3P 460359-16-4P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)

(prepn. of alkyl silane liq. crystal compds. for liq crystal display)

IT 460359-17-5P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material  
use); PREP (Preparation); USES (Uses)

(prepn. of alkyl silane liq. crystal compds. for liq crystal display)

IT 460359-43-7

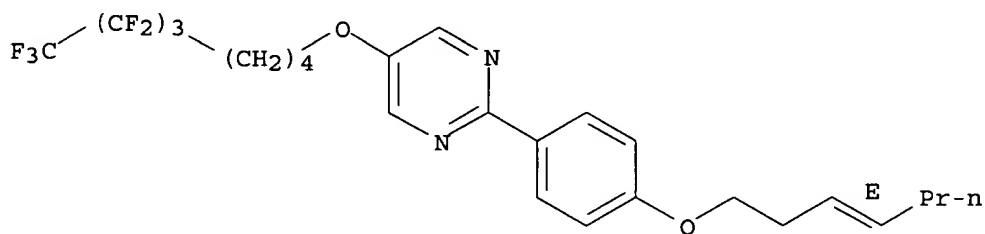
RL: TEM (Technical or engineered material use); USES (Uses)

(alkyl silane liq. crystal compds. for liq crystal display)

RN 460359-43-7 CAPLUS

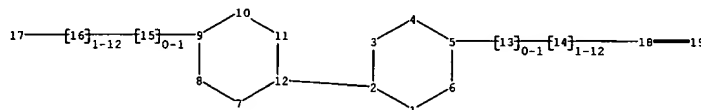
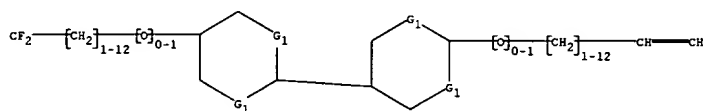
CN Pyrimidine, 2-[4-[(3E)-3-heptenyloxy]phenyl]-5-[(5,5,6,6,7,7,8,8,8-  
nonafluorooctyl)oxy]- (9CI) (CA INDEX NAME)

Double bond geometry as shown.



Co





chain nodes :

13 14 15 16 17 18 19

ring nodes :

1 2 3 4 5 6 7 8 9 10 11 12

chain bonds :

2-12 5-13 9-15 13-14 14-18 15-16 16-17 18-19

ring bonds :

1-2 1-6 2-3 3-4 4-5 5-6 7-8 7-12 8-9 9-10 10-11 11-12

exact/norm bonds :

1-2 1-6 2-3 2-12 3-4 4-5 5-6 5-13 7-8 7-12 8-9 9-10 9-15 10-11 11-12 13-14  
14-18 15-16 16-17 18-19

G1:C,O,N

Match level :

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom 11:Atom  
12:Atom 13:CLASS 14:CLASS 15:CLASS 16:CLASS 17:CLASS 18:CLASS 19:CLASS